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Improvement in food processors

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**ORIGINAL
COMPLETE SPECIFICATION
STANDARD PATENT**

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Improvement in food processors

The following statement is a full description of this invention, including the best method of performing it known to me:-

IMPROVEMENT IN FOOD PROCESSORS

Background

5 The present invention relates to food processors and more particularly to an improved inlet or feed tube arrangement for a food processor.

Prior Art

10 Food processors have been a particularly successful kitchen appliance in both professional and domestic kitchens. Food processors are able to mix, comminute, grate and slice a wide range of fruit and vegetable products.

15 All existing food processors have an inlet or feed tube dimensioned such that the standard sized fruit and vegetable product items such as potatoes, tomatoes, oranges etc must be first cut at least once before attaining a size that can be fed to the processor. Additionally, the existing feed tube arrangements are unable to receive multiple whole fruit and vegetable items of the aforementioned kind. The efficiencies of existing food processors slows the throughput of material in slicing, grating or shredding operations where material is processed
20 against a spinning or horizontal disc just beneath the outlet of the feed tube.

Summary of Invention

25 Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

30 Despite the period of time during which food processors have been in existence no one has recognised the significant and substantial advantages that arise as a result of the present invention which provides for a substantially taller feed tube with a considerably larger

bore than has been previously employed. In particular, a feed tube of an aspect of the invention has a diameter approximating the radius of an uppermost opening of a bowl of a food processor and an axial extent of at least substantially twice the diameter of the tube.

5 By provision of a feed tube on a food processor in accordance with the present invention. Multiple units of a fruit or vegetable item such as, say, potato, orange, tomato, cucumber etc can be placed one above another in the feed tube to be rapidly processed by being fed under the action of a pusher through a rotating disc tool mounted in the processor.

10 In a food processor having a feed tube in accord with the present invention it is preferred that the mounting for the disc shaped tool to the processor is formed with an upper bearing system in the top of the mounting spindle. Such an arrangement improves the rigidity of the coupling between the tool and the processor to better resist flexure of the rotating disc when subject to a bending moment under the increased load of, say, a stack of multiple
15 potatoes, or oranges etc being forced against the spinning disc under their own weight and the forced applied by the pusher.

In a particularly preferred embodiment, a food processor incorporating the present invention is powered by a direct drive induction motor having the power capabilities to
20 process a feed tube full of intact fruit or vegetable items.

Brief Description of Drawings

25 The present invention will now be described by way of example with reference to the accompanying drawings, in which:-

Fig. 1 is a perspective view of a known food processor exhibiting a feed tube arrangement of the prior art;

30 Fig. 2 is a perspective view of a known food processor incorporating a feed tube arrangement in accord with an embodiment of the present invention;

Fig. 3 is a plan view of Fig. 1;

Fig. 4 is a plan view of Fig. 2;

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Fig. 5 is a partial front elevation view of Fig. 1;

Fig. 6 is a partial front elevation view of Fig. 2;

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Fig. 7 is the plan view of Fig. 3 showing a food product in the feed tube;

Fig. 8 is the view of Fig. 4 showing a discreet and complete food item in the feed tube;

15

Fig. 9 is a partial front elevation view of Fig. 7; and

Fig. 10 is a partial front elevation view of Fig. 8.

Best Modes

20

In the prior art arrangement of Fig. 1 there is shown a food processor 10 having a known form of taper-sided bowl 11 with a cover plate 12 having a feed tube 13 formed as part of cover plate 12.

25

Slicing blade 14 on rotatable disc 15 is mounted on drive shaft 16 of the processor for direct drive via an electric motor within base housing 17.

Fig. 1 shows a typical known form of food processor.

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In Fig. 2 like components to those of Fig. 1 are indicated by the same reference numerals. In the case of the embodiment depicted in Fig. 2, feed tube 18 is provided in place

of the known form of feed tube 13. As can be seen from Figs. 2, 4, 6, 8 and 10 feed tube 18 is sized to project upwardly from cover plate 12 to a height sufficient to contain multiple uncut food product items such as potatoes, oranges or a whole cucumber etc to be fed under the action of pusher 19 which has a cross-sectional shape complementary with that of feed tube 18.

A slicing disc 15 supporting blade 14 could equally be replaced by a shredding disc or even a disc having blades which function to cut potato chips/french fries from whole potatoes rather than potato slices as would be formed by the cutting action of blade 14.

10

Notwithstanding that food processors have been in use for some decades there has been a failure to recognise that forming a feed tube in accord with the present invention for use in conjunction with slicing or shredding discs of a food processor leads to substantial advantages. As can be seen in Figs. 2, 4 and 8 the radial dimension of the depicted embodiment of feed tube 18 corresponds to the radial dimension of blade 14 so that all of the cutting edge of blade 14 is active in slicing through the full width dimension of each potato etc 20 that just fits within feed tube 18.

The necessity to first reduce the size of food products to be fitted in tube 13 as shown in Figs. 7 and 9 is answered by adopting a feed tube 18 in accord with an embodiment of the present invention.

As a result of the increased loadings applied to disc 15 it is preferred that an upper bearing mounting be provided to support disc 15 on shaft 16.

25

In addition, it is also preferred to employ a heavier duty direct-drive induction motor in embodiments of the present invention than would typically be provided for in a prior art embodiment in accord with Fig. 1. Such a motor is preferred so as to have sufficient power to drive the slicing or shredding disc 15 through larger diameter products 20 as compared with the pre-cut food items 21 as shown in Figs. 7 and 9.

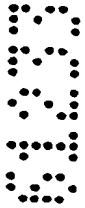
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It will be appreciated by persons skilled in the art that numerous variations and/or

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modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

- 5 The reference to any prior art in this specification is not, and should not be taken as, an acknowledgment or any form of suggestion that that prior art forms part of the common general knowledge in Australia.



The claims defining the invention are as follows:

1. A feed tube for a food processor, said food processor comprising a bowl adapted to be mounted by a circular lid fitted with the tube, said bowl being adapted to contain a
5 rotatable cutting tool having an upper extremity adjacent the underside of the lid when in use on the processor, said tube being sized to have a diametral dimension approximating the radius of an uppermost opening of the bowl and an axial extent at least substantially twice the diameter of the tube.
- 10 2. A feed tube as claimed in claim 1 when sized to enable feeding of at least two oranges in tandem.
3. In a food processor incorporating a feed tube as claimed in claim 1 or 2, wherein said rotatable cutting tool is mounted on a rotatable shaft having a bearing adjacent and supporting
15 the cutting tool when mounted on the shaft.
4. In a food processor as claimed in claim 3 wherein the rotatable shaft is coupled for direct drive by an induction motor.
- 20 5. A feed tube for a food processor substantially as hereinbefore described with reference to Figures 2, 4, 6, 8 and 10 of the accompanying drawings.

DATED this 21st day of September 2000

25 **BREVILLE PTY LTD**
By Its Patent Attorneys
DAVIES COLLISON CAVE

ABSTRACT

A feed tube for a food processor is sized to fit an enable feeding of whole food
5 such as fruit and vegetable items with at least a pair of those items being able to be fitted
in tandem in the tube. Typical food items to be fitted in the tube include such as some
oranges, tomatoes, potatoes and the like.

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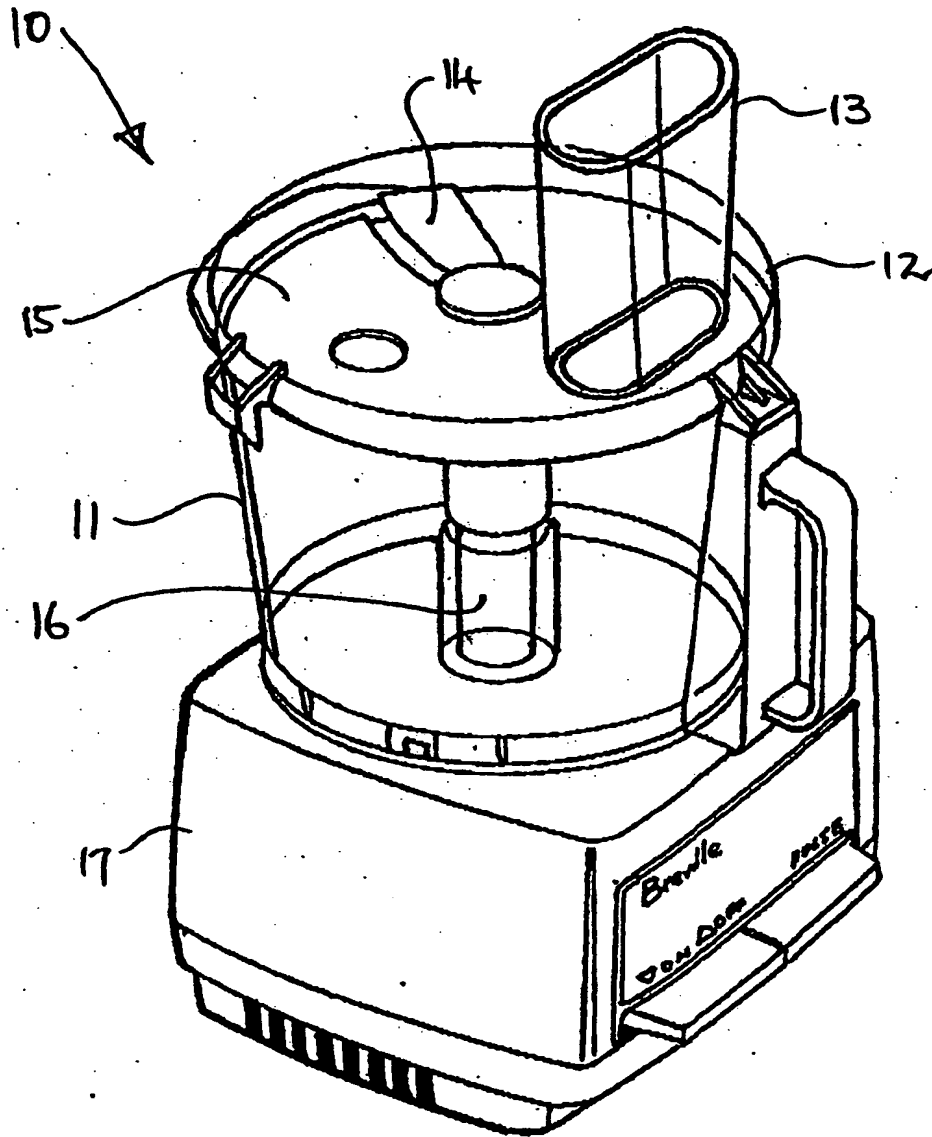


FIG. 1

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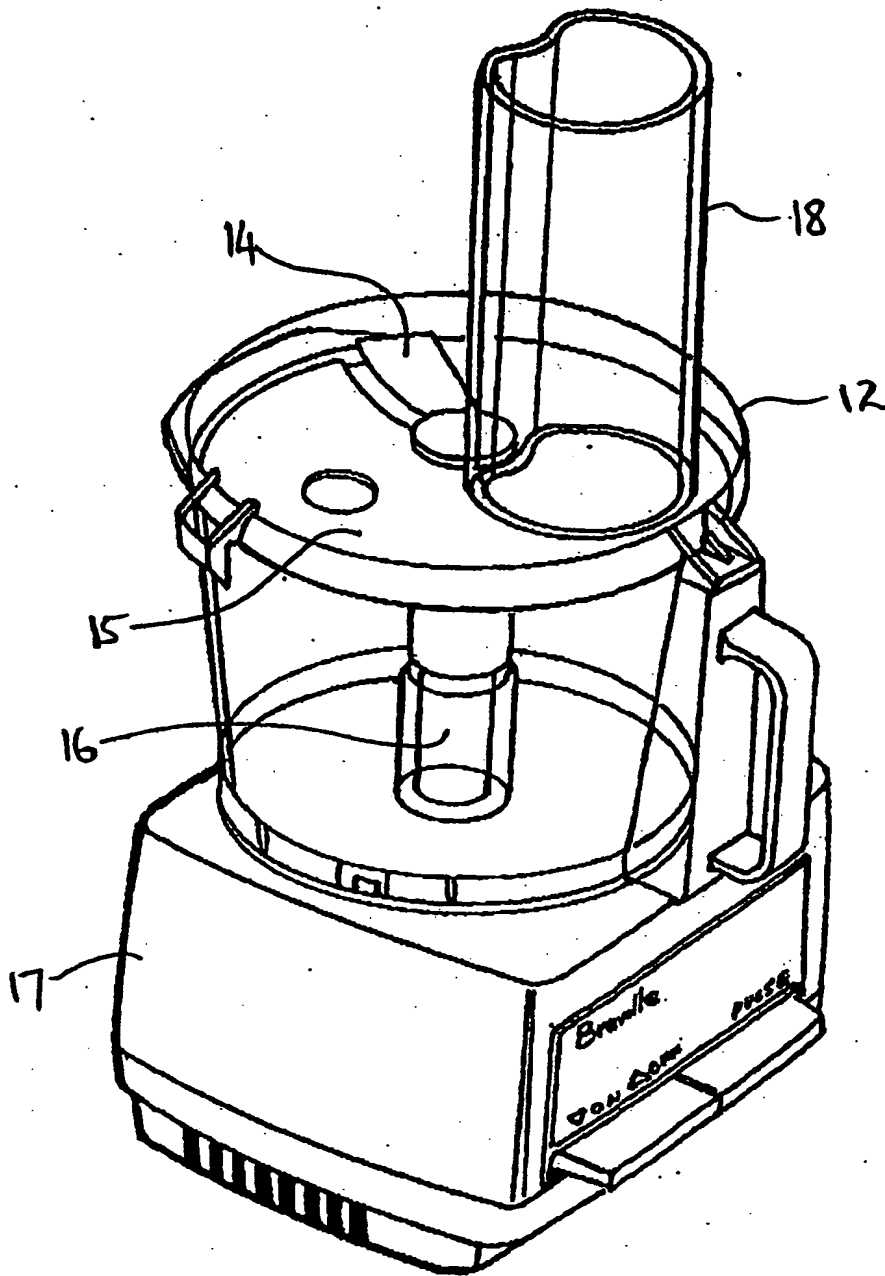


FIG. 2

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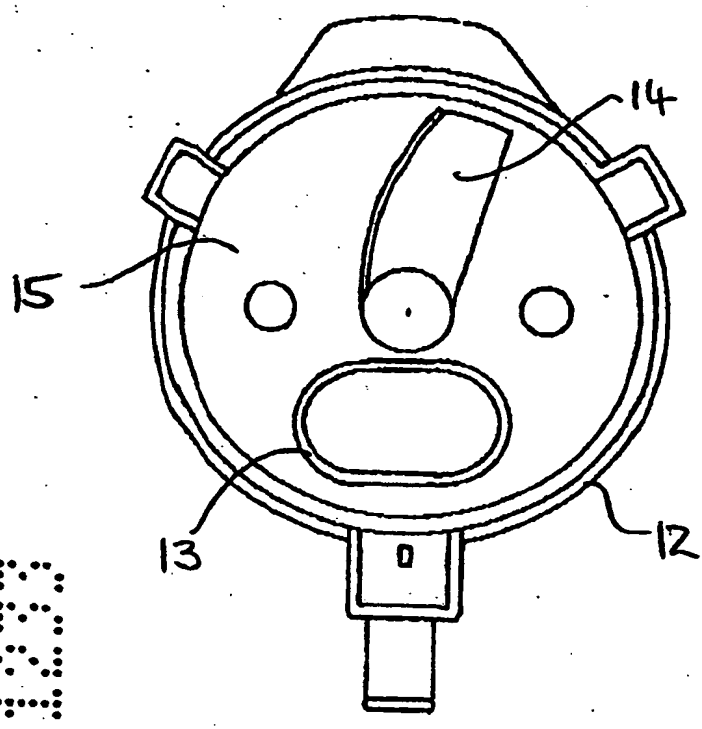


FIG. 3

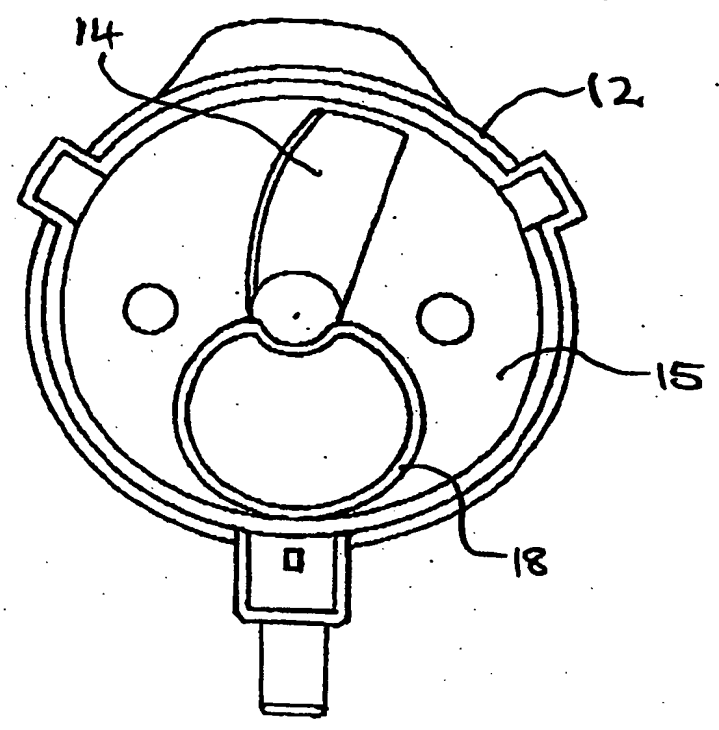


FIG. 4

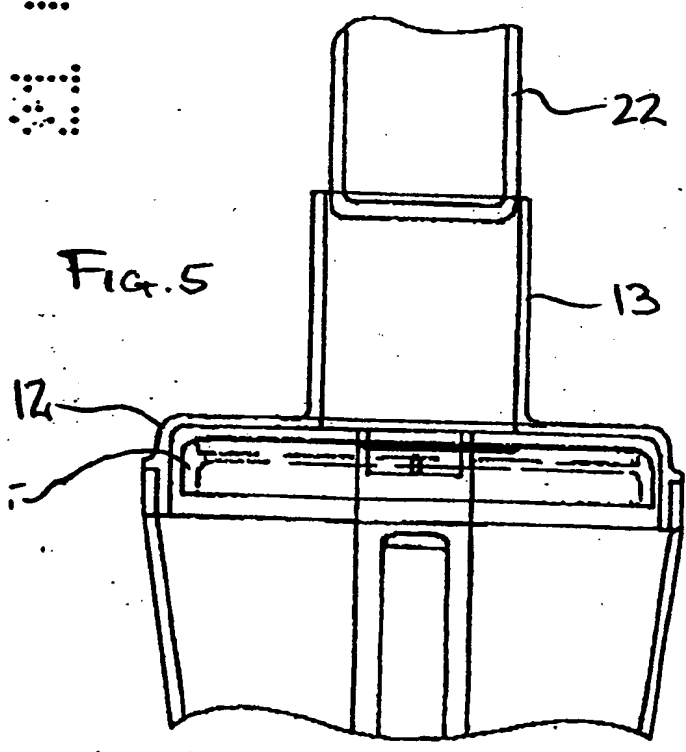
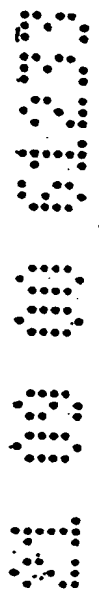


FIG. 5

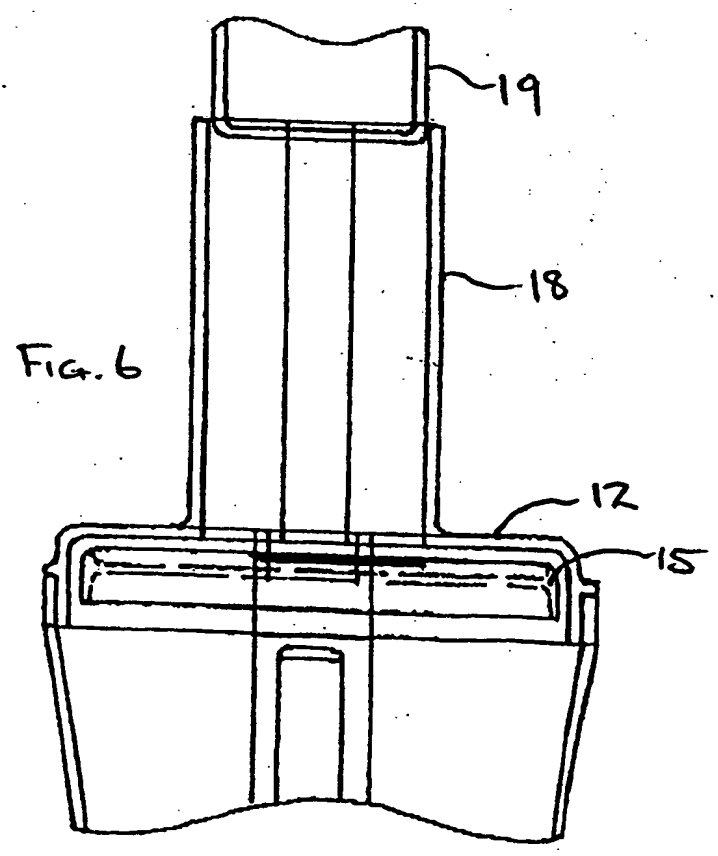


FIG. 6

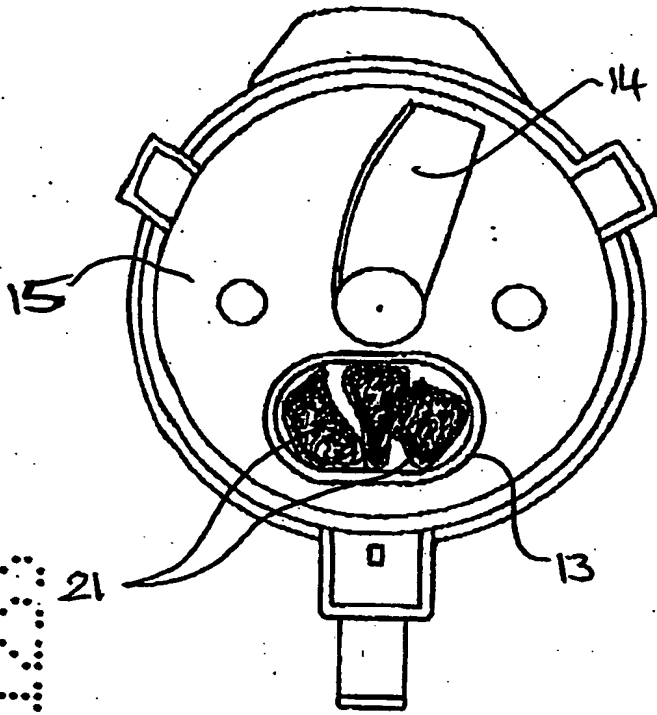


FIG. 7

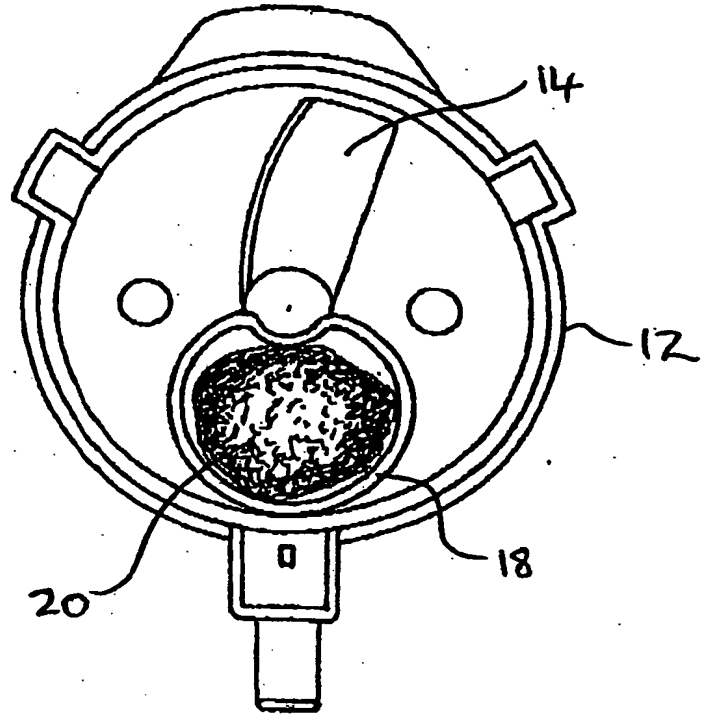


FIG. 8

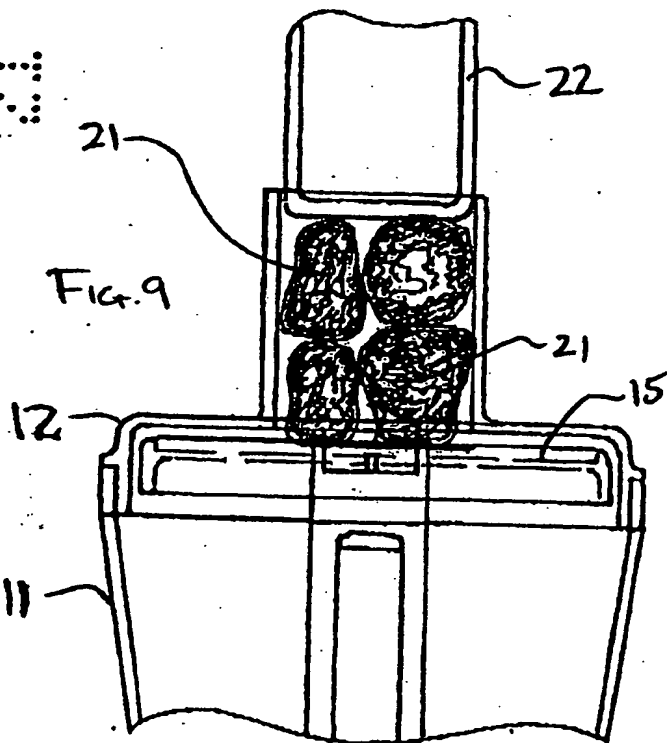


FIG. 9

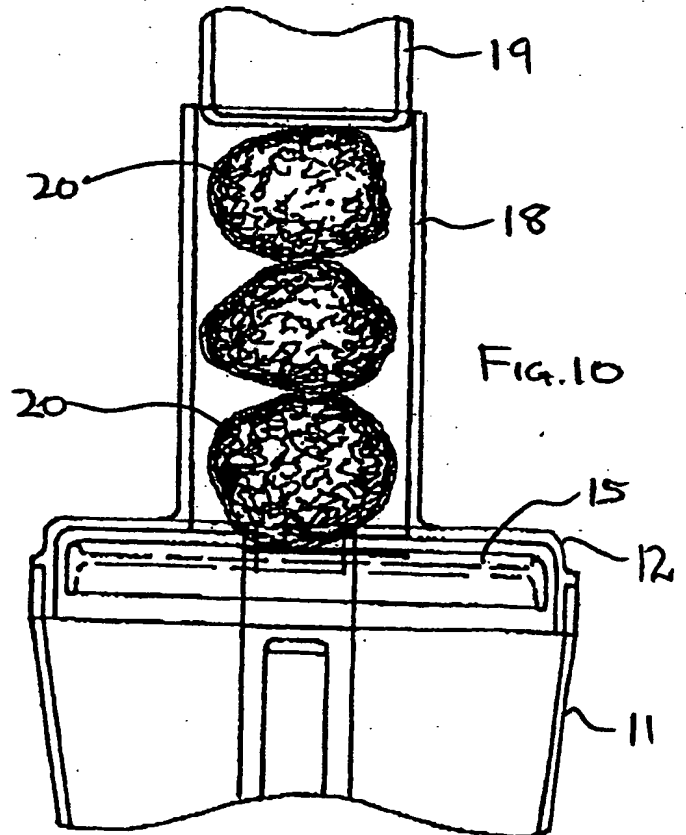


FIG. 10

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